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ME 470
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Power T D20

Design Process

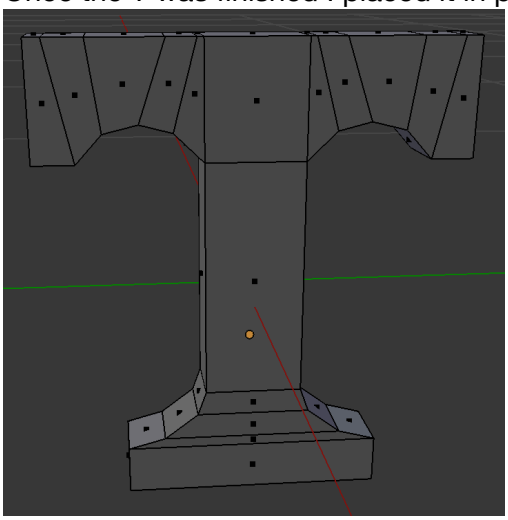
Using Blender 2.79 I designed a d20 with a Power T taking the place of the ’20’.

I started by inserting a standard icosphere and set the subdivision level to 1.
This creates the basic 20-sided shape of a usual d20.

I then inserted text objects for the numbers 1 through 19. (The ’20’ will be a special process)
Each number was given a serifed font for easy recognition and extruded to give it thickness.

To place the numbers on the object, I used the “snap during transform”, set the snap element to faces, and turned on “align rotation with the snapping target” (settings shown in image).
I snapped each number onto each face, using a personal d20 as the basis for arrangement.
The snapping tools automatically aligned the numbers to the face normals of the icosphere.
I then manually rotated the numbers on each face to match the rotations on my d20.

I then modelled a Power T out of a cube as shown in the image.
This was done with a series of extrusions and edge translations.
Once the T was finished I placed it in place of the ’20’.



I converted all numbers from text objects to meshes.
I then translated the numbers and Power T into the surface of the icosphere and used boolean properties to subtract the meshes from the faces of the icosphere.

I exported the model as .stl format and uploaded to https://grid.space/kiri for printing details.